

REMARKS

Claims 5, 6 and 23 have been amended, claim 7 have been canceled and its limitations incorporated into claim 6. Claims 34-57 have been added. Support for the amended and added claims can be found at page 4, lines 11-14 (claims 40, 52); page 4, line 21 – page 5, line 15 (claims 41-45 and 53-57); page 6, line 10 (5, 6); page 6, lines 12-23 (5, 6, 36-39, and 48-51); Fig. 8 (34, 35, 46, 47); page 7, line 16 (5, 48, 49); and elsewhere in the specification.

The specification has been amended by striking a phrase that was inadvertently incorporated from an earlier application. The stricken phrase refers to “the spinel-supported catalyst;” however, there is no other mention of any spinel anywhere in the application, and therefore it is clear that this phrase was inserted by error and should be removed.

The Examiner should be aware that applicants have another application (serial no. 10/076,880) pending in the same art unit in which U.S. Pat. No. 4,177,219 has been cited for the proposition that it would be obvious to add Ru to a methanol steam reforming catalyst. Applicants have not submitted the ‘219 patent because it is clearly nonanalogous art that has nothing to do with methanol steam reforming.

Information Disclosure Statements

Applicants filed Information Disclosure Statements on July 16, 2004 and February 20, 2004. Please consider each of the references in those Statements and initial the Forms 1449s.

Claim Objections

The claims have been amended as recommended by the Examiner.

Claim Rejections

Claims 5-8 have been rejected as anticipated by U.S. Pat. No. 4,743,576 to Schneider et al. Applicants respectfully submit that claims 5 and 6, as amended, are patentable over the '576 patent. The examples in the '576 patent described making hydrogen by decomposing methanol in the presence of a small amount of water using a 2.6 s contact time.

Unlike the invention of claims 5 and 6, Schneider et al. do not teach or suggest reactions with contact times under a second that still exhibit high methanol conversion. Unlike the invention of claim 5, Schneider et al. do not teach or suggest conducting a methanol steam reforming reaction in a microchannel. Further unlike claim 5, Applicants have shown that use of a cerium-promoted alumina or zirconia supported catalyst provides superior results for methanol steam reforming as compared with catalysts without cerium; this enhanced reactivity for methanol steam reforming is not taught or suggested by Schneider et al. Further unlike claim 6, Schneider et al. do not teach or suggest the superior results obtained when the catalyst contains a Pd-Ru alloy where the catalyst contains more Pd than Ru.

Conclusion

If the Examiner has any questions or would like to speak to Applicants' representative, the Examiner is encouraged to call Applicants' attorney at the number provided below.

Respectfully submitted,

Date: 18 Nov. 2004

Frank Rosenberg
18 Echo Hill Lane
Moraga, CA 94556

By: Frank Rosenberg

Frank Rosenberg
Registration No. 37,068
tel: (925) 376-8416